

FIGURE NSH-013:1. Ambient Temperature and Fluid Electrical Conductivity; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-013.

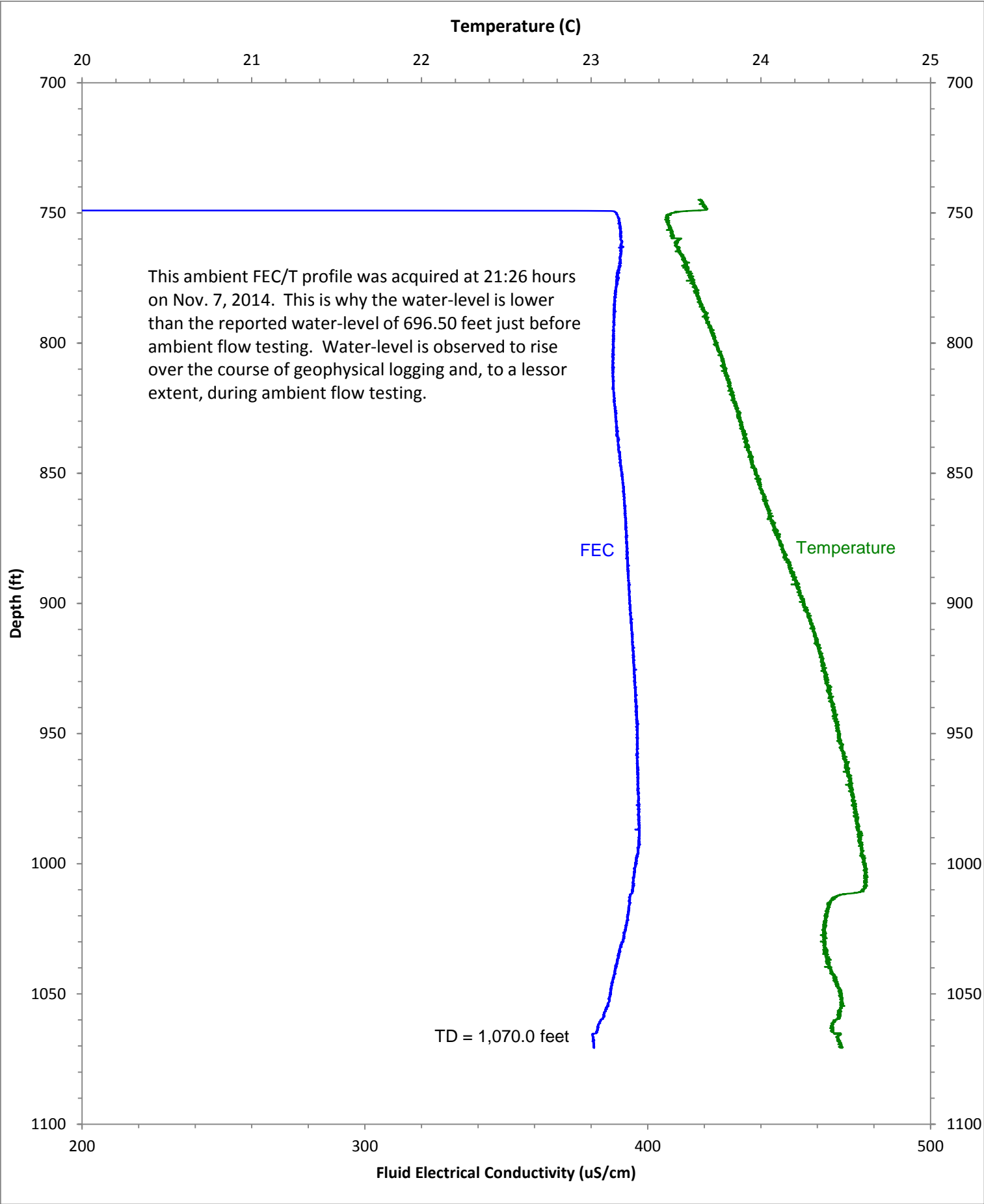


FIGURE NSH-013:2. Injection And Raised-Head Data During Corehole Dynamic Flowmeter Injection Stress-Test at 9.5 GPM; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-013.

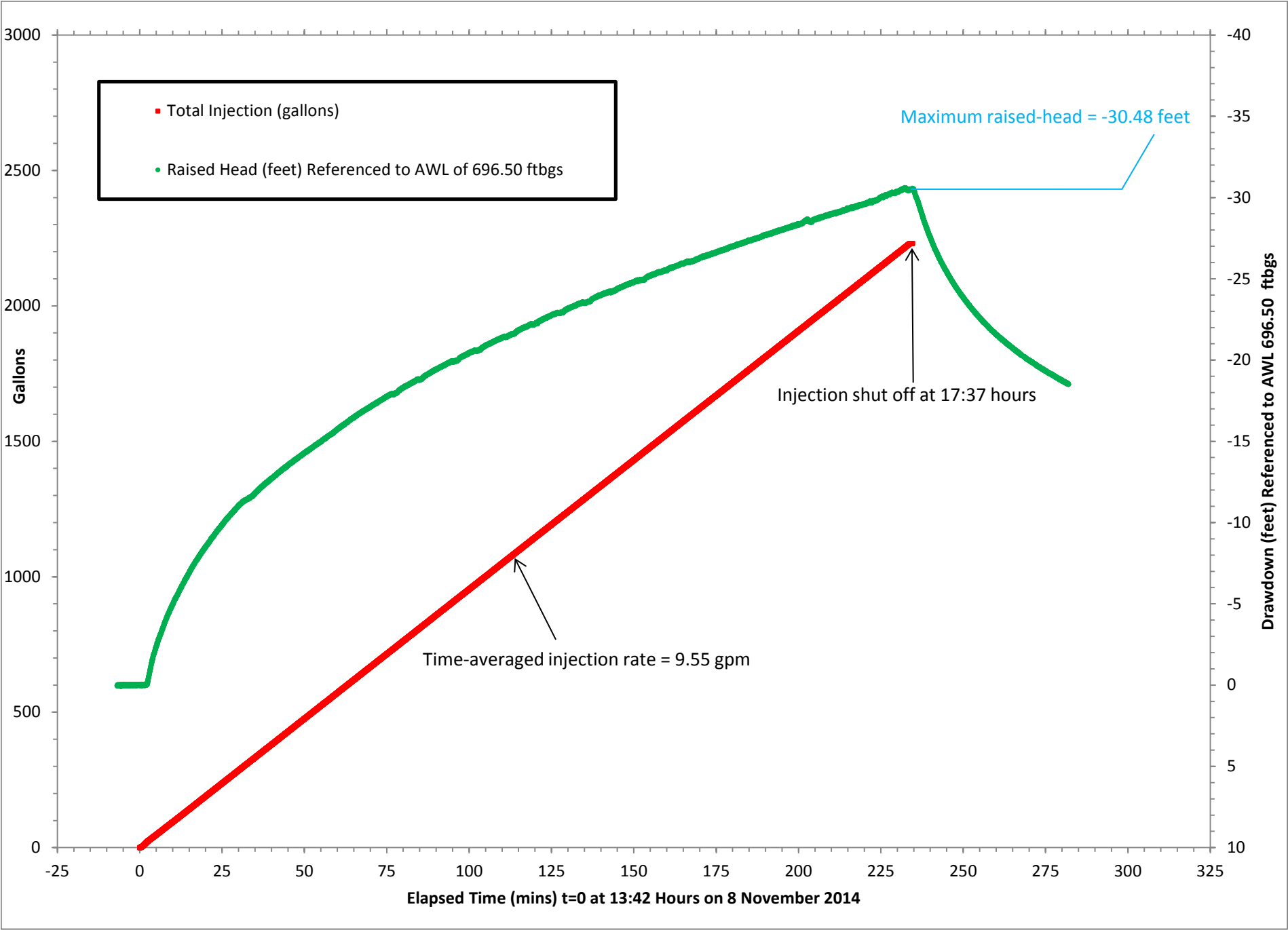


Table NSH-013:1. Summary of Corehole Dynamic Flowmeter Test-Station Results; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-013.

NSH-013: November 8, 2014					
Depth (feet)	Depth (meters)	Flow in Borehole During Ambient Testing (GPM)	Flow in Borehole During Injection Testing (GPM)	Percent Flow of Total Injection (%)	Comments
709.0	241.63	0.04	-4.97	52.0	Likely partial leakage by diverter during inj test leading to a lower-than-expected flow-reading.
730.0	248.78	0.04	-5.16	54.0	Likely partial leakage by diverter during inj test leading to a lower-than-expected flow-reading.
745.0	253.90	0.04	-5.34	55.9	
767.0	261.39	0.03	-5.26	55.1	Change in flowrate under both ambient and stressed conditions.
788.0	268.55	0.03	-5.26	55.1	No change in flow rate.
822.0	280.14	0.02	-4.90	51.3	Change in flowrate under both ambient and stressed conditions.
845.5	288.15	0.02	-4.96	51.9	For tests done under inj, the three tests at 822, 845.5 and 864' are aveaged together = -4.96 gpm
864.0	294.45	0.02	-5.01	52.5	
894.0	304.68	0.02	-4.70	49.2	For tests done under inj, the three tests at 894, 915 and 937' are aveaged together = -4.81 gpm
915.0	311.83	0.02	-4.84	50.7	
937.0	319.33	0.01	-4.87	51.0	An additional 0.02 gpm enters the borehole and migrates up.
961.0	327.51	0.00	-4.07	42.6	Change in flowrate under both ambient and stressed conditions.
985.0	335.69	NA	-1.96	20.5	Significant change in flow observed during inj testing here.
1010.0	344.21	NA	-0.46	4.8	Likely partial leakage by diverter during inj test leading to a lower-than-expected flow-reading.
1020.0	347.62	-0.01	-0.53	5.5	For tests done under inj, the two tests at 1,020' and 1,040 feet are aveaged together = -0.55 gpm
1040.0	354.43	0.00	-0.57	6.0	0.15 gpm exits the borehole between 1,040 and 1,061.2 feet.
1061.2	361.66	NA	-0.40	6.0	0.40 gpm exits the borehole between 1061.2 feet and TD (1,073.3 feet)

Note: Positive flow values represent upflow in the borehole, negative valus represent downflow.

NA = Not Applicable. No test station was taken at that depth under the respective test condition.

Ambient water level (AWL) was recorded at 696.50 ftbgs on November 8, 2014 before Ambient Testing was initiated.

Additional Note: On occasion, when the flowmeter is placed on fractures, some vertical flow in the borehole bypasses the flow-chamber via the fractures intersecting the borehole. This is likely the case during the injection testing at 1,010 feet.

Table NSH-013:2. Summary of Corehole Dynamic Flow Meter Results With Hydraulic Conductivity, Transmissivity and Head Estimations; Gunnison Hydrology Study; Excelsior Mining; Arizona; Borehole: NSH-013.

Well Name	NSH-013
Ambient Depth to Water (ftbtoc)	697.50
Ambient Depth to Water (ftbgs)	696.50

Diameter of Borehole (ft)	0.683
Maximum Raised Head (ft)	30.48
Effective Radius (ft)	100

Interpretation of Corehole Dynamic Flowmeter Logging Results: NSH-013									
Interval No.	Top of Interval (ft)	Bottom of Interval (ft)	Length of Interval (ft)	Ambient Flow <sup>1</sup> (gpm)	Darcy Velocity in Aquifer <sup>2</sup> (ft/day)	Interval-Specific Flow Rate During Injection (gpm)	Interval-Specific Hydraulic Conductivity <sup>3</sup> (ft/day)	Transmissivity (ft <sup>2</sup> /day)	Interval-Specific Depth to Water - Vertical (ftbgs)
1*	666.0	745.0	79.0	-0.04	NA	-4.21	3.02E-01	2.38E+01	NA
2	749.3	757.2	7.9	0.01	NA	-0.08	6.51E-02	5.14E-01	NA
3	790.9	815.8	24.9	0.01	NA	-0.30	7.11E-02	1.77E+00	NA
4	876.1	893.3	17.2	0.00	NA	-0.15	4.98E-02	8.57E-01	NA
5	941.9	958.5	16.6	0.02	NA	-0.74	2.62E-01	4.34E+00	NA
6	965.8	984.3	18.5	0.00	NA	-2.11	6.51E-01	1.21E+01	NA
7	985.4	1017.2	31.8	0.00	NA	-1.41	2.53E-01	8.05E+00	NA
8	1040.3	1060.7	20.4	0.00	NA	-0.15	4.20E-02	8.57E-01	NA
9	1065.1	1073.3	8.2	0.00	NA	-0.40	2.79E-01	2.28E+00	NA

Note: Negative flow, if any, is outflow from the borehole to the aquifer, positive flow is inflow to the borehole.

\* The top of this interval, Interval #1, is assumed to be the height of the fluid column during injection (AWL of 696.5' + Max Raised Head of 30.48 = 666.0'), though injected water certainly may have been lost to the formation above injection-water level. The bottom of this interval is the test station of 745 feet which registered the highest observed value during injection testing of 5.34 gpm downflow. The two test stations above this depth registered lower values, which is most likely the result of flow in the borehole bypassing the diverters of the probe, biasing the results low.

<sup>1</sup> Upward ambient vertical flow is identified in this borehole under ambient conditions.

<sup>2</sup> Darcy Velocity, or Specific Discharge in aquifer, is calculated using the observed volumetric flow rate, the cross-sectional area of the flow interval in the wellbore and a wellbore convergence factor of 2.5 (Drost, 1968). The Darcy Velocity is only applicable to ambient horizontal flow.

<sup>3</sup> Hydraulic conductivity and transmissivity estimates are based on single well drawdown data, a porous-medium equivalent model and Hvorslev's 1951 porosity equation.

NA = Not Applicable